

Bulk metallic glass for low noise fluxgate, Phase I

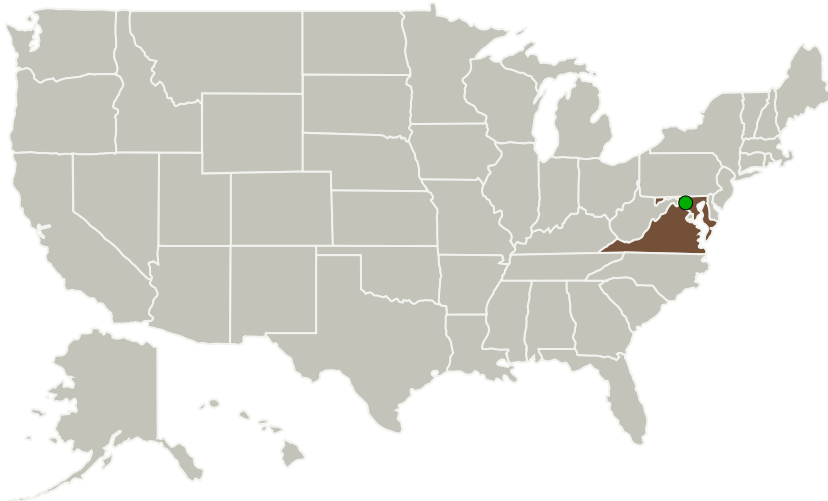
Completed Technology Project (2012 - 2012)



Project Introduction

The team of Prime Photonics, Virginia Tech, and Utron Kinetics propose to demonstrate a method for fabrication of a bulk, amorphous, cobalt-rich material that demonstrates low-noise magnetic properties, superior to those of the 6-81.3 Mo-Permalloy family. In particular, bulk cobalt-rich amorphous materials will provide increased permeability, tunable Curie temperature, highly controlled coercivity and saturation inductance, all without the introduction of magnetostrictive-based excess noise. The bulk nature of the material will provide an unprecedented degree of freedom in core geometry design over existing ribbon-form amorphous alloys, allowing for near-net shapes of densified compacts. The combined effect of these enhancements will be to increase fluxgate sensitivity, decrease offset and noise, and allow for new, smaller geometries in fluxgate magnetometers.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Prime Photonics, LC	Lead Organization	Industry	Blacksburg, Virginia
 Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland



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Primary U.S. Work Locations

Maryland

Virginia

Project Transitions



February 2012: Project Start



August 2012: Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/140280>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Prime Photonics, LC

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

David Gray

Co-Investigator:

David K Gray

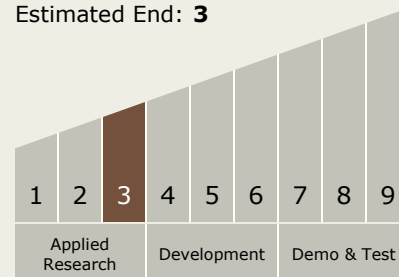
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Technology Maturity (TRL)

Current: **3**
Estimated End: **3**



Technology Areas

Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
 - └ TX12.1 Materials
 - └ TX12.1.7 Special Materials

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System